A critical appraisal of "Managing knee osteoarthritis with yoga or aerobic/strengthening exercise programs in older adults: a pilot randomized controlled trial"

By

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Abstract

The study completed and outlined in this article was designed to see how three different treatment plans could impact the physical and psychological symptoms of knee osteoarthritis in older adults, as well as adherence to the assigned program. The three treatments applied include: hatha yoga, aerobic/strengthening exercise program, and an education program. These subjects were randomly placed in difference groups, either participating in hatha yoga or aerobic/strength exercise for 8 weekly sessions as well as 2-4 at home sessions. Each of the treatments were either designed or approved by an osteoarthritis specialist, and administered by professionals before the subject carried out the programs in their own homes to ensure the subjects did not injure themselves or elicit any pain. The treatments lasted 8 weeks and the primary outcome measures tested were physical function, pain, and stiffness. Secondary outcome measures were more functional (sit to stand, balance, and walking tests) and psychological (anxiety, depression, and fear of falling). The results showed that the yoga group had greater symptom improvement, higher perceived function than the other group, took less time to complete the repeated sit to stand at the conclusion of the study, and had lower anxiety and less fear of falling as compared to the aerobic/strength exercise group.

Key words

Osteoarthritis, hatha yoga, older adults, aerobic and strength exercise

Introduction

This study was done looking at the population of older individuals (60 years and above) who had gone through an extensive screening process to ensure they fit the subject criteria set by the authors. This article is important to the management of physical and psychological symptoms associated with osteoarthritis in older individuals through a low impact treatment of hatha yoga, aerobic strength and exercise, and an education program. The purpose of this paper is to consolidate the clinical appraisal of the article through the individual analyses of the the introduction, methods, results, and discussion. The question I posed and researched for this article was: "Can yoga classes for older adults lead to better management of hip and knee osteoarthritis?"

Methods

The literature research and review process to find this article was time-consuming but not difficult. I used pubmed.gov and used the keywords: older adults AND yoga, older adults AND aquatic exercise— after looking at the results for each I revised my clinical research question and decided to focus more on the yoga aspect. I placed a few limitations on my search to begin with: limit the publish date from 2014 until 2017 and for the only results that came up to be free and full access so I would be able to read them without paying for the article. The only inclusion/exclusion criteria I added to my search was the key term "older adults" so the population would be narrowed. After revising this search, thirty-one hits came up.

After filtering through the results, I found an article that best fit what my clinical question was asking. This article was published in its final edited form in March of 2017, and the journal

it was published in was Rheumatoid International. The article was written by Corenja Cheung, Jean F. Wyman, Ulf Bronas, Teresa McCarthy, Kyle Rudser, and Michelle A. Mathiason and though I could not find the location of the study, I would assume the location of the study took place where the authors are from: The School of Nursing, University of Minnesota as well as The University of Illinois at Chicago, Illinois in the United States. I chose this article because it is well written, has good sources of literature as references, and it addressed the highlights of my clinical question. I think this article does a good job of answering my question because it studies the population I am looking at, the clinical diagnoses of osteoarthritis in the lower extremities (primarily hip and knee), and the treatment I am looking for, which in this case is yoga.

Results

Summary of the study

The aim of this study was to analyze the effect of three different treatments on osteoarthritis in older populations. The three treatments were hatha yoga, aerobic and strength exercise, and an education program. The outcome measures were physical symptoms such as pain, stiffness, and general function, while the psychological symptoms were anxiety and fear of falling. Each of the programs were checked or created by people who are professionals on osteoarthritis— this was done to ensure the safety of the subjects. For most of the results, hatha yoga yielded the best outcome compared to the aerobic strength and endurance group and the education group.

Appraisal of the study introduction

I think the introduction is well written. The authors did a good job of starting in a broad, general sense of the subject by discussing the overall topic and the relevance it has today according to the population being studied. Not only do they cover the problem of osteoarthritis and it's physical symptoms, they also discuss the psychological symptoms such as anxiety, fear of falling, and general decreased quality of life. From the general perspective, the authors then related the condition OA to their specific purpose— self management. Research on self management of OA is important because that is a large part of this study. The authors then dive into the specific treatments they will apply for the subjects— hatha yoga and aerobic and strength exercises and how they will compare them to each other. The introduction concludes with the aims of the study as well as the hypotheses, which is important for going into the methods so you can compare the procedure to the overall goal.

One weakness of this article is some of the dated literature. There are some sources found that are from the 1980's, but I would say the majority of literature is from 2004 on. Given that yoga is an ancient art of human movement, it makes sense to have research that is a little bit older, as long as that dated research is not dominating the literature used in the article.

Appraisal of the study methods

In general, the methods section of this article is strong and well written. The study was a randomized controlled trial and each subject went though an extensive screening process to ensure the participants were all similar.

A possible weakness that is generally accepted for studies could be that the subjects were not blinded, but the nature of this study forbids this from being a possibility. Since the subjects

must each participate according to their group, they cannot be blinded to their assignment. I could not find any major weaknesses in the methods for this article.

Appraisal of the study results

The aims of the study were presented in the order of: evaluating the results of each of the treatments (hatha yoga, aerobic strength/exercise, and an education intervention), and then comparing these to see the difference to adherence as well as how the subject's symptoms changed for each group. The researchers hypothesized the hatha yoga groups would have overall better improvement in the symptoms associated with their osteoarthritis than the participants in the aerobic and strength exercise and education treatments. I believe the results are organized clearly. I appreciate how at the beginning of the results the researchers give a few outlining paragraphs explaining what the reader should expect from the results before getting into all the numbers. There were several statistically significant results, mostly found with the WOMAC test for the total results, pain, stiffness, and pain scale. Statistically significant results were also found with the physical function tests for the walking test as well as the chair test. There was also a statistically significant result for the psychosocial well being FESI test.

One weakness I found in the results was that even though the authors reference the tables multiple times, the tables are not found in the results section. The tables and figures are all found at the very end of the article, past the references. I found this to be difficult trying to flip back and forth, as well as disorganized. To remedy this, I would suggest the tables be placed in the results section of the article.

Appraisal of the study discussion

The discussion, in general is a moderate discussion. It is reflective of the results without repeating what the study found, meaning it does a good job of indicating the importance and application of the results section. I also think the authors did a good job of laying out the discussion. The authors do a good job of discussing the clinical implications of the study and did a good job wrapping up the study in a final paragraph.

One of the major weaknesses this has is the multiple limitations— sample size being too small, the study was not diverse racially/ethnically, the subjects were volunteers, using a video camera was a good way to see at home sessions but may have been a problem for some subject who are not technologically proficient.

Discussion

The clinical significance of this study as related to physical therapy is that yoga as well as aerobic and strength training exercises were beneficial in managing osteoarthritis on many counts to those in the study (Cheung et. al 2017). The relevance of this study to my clinical question is that it studies within the population I am looking at, the clinical diagnoses of arthritis in the lower extremities, and the treatment I am looking at, which in this case is yoga.

I would say I am largely in favor of using yoga as a treatment for managing the symptoms— both physical and psychological— for osteoarthritis in geriatric populations. This study shows the benefits for each of these things— decreased pain and stiffness as well as a lessened fear of falling and anxiety with movement. Hatha yoga is a low impact type of movement and exercise that could be easily implemented into a daily or weekly routine at retirement facilities and involves meditation as well, which could positively influence the mentality of the individuals participating. I do believe the benefits outweigh the risks with this

activity. I do not believe there is much opposition to using yoga as a management therapy/treatment for osteoarthritis in geriatric populations, but I think as long as the activities are supervised and filtered through professionals there is a lower likelihood of injury or exacerbation of symptoms.

I have enough confidence in this article to use it for a future client/patient for a few reasons. This study shows that hatha yoga should help manage the physical and psychological symptoms of osteoarthritis in older populations, but even if it does not help their specific symptoms, yoga is a good low impact exercise for older adults. I could see prescribing a home exercise program for certain yoga poses for patients in the future. There could be one session in the clinic where we practice the poses and make sure the optimal positions are being used and that the patient does not hurt themselves, but I think this kind of program would work best as a recommendation in large groups settings. This way, the patient could work to alleviate physical and psychological symptoms of their osteoarthritis as well as engage socially with others of their age.

Based on my clinical question and upon detailed analysis of the article in each section— I was impressed with this article and would say it is clinically a strong article. Not only was each section written well based on the material being studied, but the article as a whole was solid and cohesive.

Cheung, C., Wyman, J. F., Bronas, U., McCarthy, T., Rudser, K., & Mathiason, M. A. (2017). Managing knee osteoarthritis with yoga or aerobic/strengthening exercise programs in older adults: a pilot randomized controlled trial. *Rheumatology International*, (3), 389. https://doi-org.easydb.angelo.edu/10.1007/s00296-016-3620-2